

## **AMENDMENTS TO THE CLAIMS**

Please amend the claims as follows.

1-43 (Canceled)

44. (New) A method to manage a remote copy process between a first storage cell in a storage network and a second storage cell in a storage network, comprising:

establishing at least one of a plurality of parameters associated with at least one characteristic of the remote copy process;

establishing at least one of a plurality of parameters associated with a spectrum sweep throughput probe;

initiating the remote copy process to copy data from a first logical unit in the first storage cell to a copy of the first logical unit in the second storage cell over the storage network, wherein the remote copy process copies data using an initial native block size; and

performing the spectrum sweep throughput probe during the remote copy process when the characteristic of the remote copy process satisfies at least one of the plurality of parameters.

45. (New) The method of claim 44, wherein establishing at least one of a plurality of parameters associated with at least one characteristic of the remote copy process comprises establishing at least one of:

a range of write block sizes to be evaluated in the spectrum sweep throughput process;

a step size by which a write block size is adjusted in the spectrum sweep throughput process;

a time duration for which data transmission is conducted during a phase of the spectrum sweep throughput process;

a lower bound of a write block size; and

an upper bound of a write block size.



46. (New) The method of claim 44, wherein establishing at least one of a plurality of parameters associated with at least one characteristic of the remote copy process comprises establishing at least one of:

- a time period permitted to elapse before a spectrum sweep throughput process is initiated; and

- a threshold change in transmission conditions associated with the remote copy process.

47. (New) The method of claim 46, wherein a spectrum sweep throughput probe is initiated in response to a predetermined decrease in a data transfer performance parameter during the remote copy process.

48. (New) The method of claim 44, wherein performing a spectrum sweep throughput probe during the remote copy process when the characteristic of the remote copy process satisfies at least one of the plurality of parameters comprises:

- performing copy operations from the first storage cell to the second storage cell for a plurality of time intervals, wherein each time interval utilizes a different write block size for a predetermined period of time;

- measuring a performance parameter at each of the time intervals; and

- selecting a block size for which the performance parameter exceeds a threshold; and

- continuing the remote copy with the selected block size.



49. (New) A network element in a computer-based storage network, comprising:

- a network interface;
- a processor;
- a memory module; and
- a communication bus that provides a communication connection between the network interface, the processor, and the memory module, wherein the memory module comprises logic instructions that, when executed on the processor, cause the processor to manage a remote copy process between a first storage cell in a storage network and a second storage cell in a storage network by performing operations, comprising:
  - establishing at least one of a plurality of parameters associated with at least one characteristic of the remote copy process;
  - establishing at least one of a plurality of parameters associated with a spectrum sweep throughput probe;
  - initiating the remote copy process to copy data from a first logical unit in the first storage cell to a copy of the first logical unit in the second storage cell over the storage network, wherein the remote copy process copies data using an initial native block size; and
  - performing the spectrum sweep throughput probe during the remote copy process when the characteristic of the remote copy process satisfies at least one of the plurality of parameters.

50. (New) The network element of claim 49, wherein the memory module further comprises logic instructions that, when executed on the processor, cause the processor to establish at least one of:

- a range of write block sizes to be evaluated in the spectrum sweep throughput process;
- a step size by which a write block size is adjusted in the spectrum sweep throughput process;
- a time duration for which data transmission is conducted during a phase of the spectrum sweep throughput process;
- a lower bound of a write block size; and
- an upper bound of a write block size.



51. (New) The network element of claim 50, wherein the memory module further comprises logic instructions that, when executed on the processor, cause the processor to establish at least one of:

- a time period permitted to elapse before a spectrum sweep throughput process is initiated; and

- a threshold change in transmission conditions associated with the remote copy process.

52. (New) The network element of claim 51, wherein the memory module further comprises logic instructions that, when executed on the processor, cause the processor to initiate a spectrum sweep throughput probe in response to a predetermined decrease in a data transfer performance parameter during the remote copy process.

53. (New) The network element of claim 49, wherein performing a spectrum sweep throughput probe during the remote copy process when the characteristic of the remote copy process satisfies at least one of the plurality of parameters comprises:

- performing copy operations from the first storage cell to the second storage cell for a plurality of time intervals, wherein each time interval utilizes a different write block size for a predetermined period of time;

- measuring a performance parameter at each of the time intervals; and

- selecting a block size for which the performance parameter exceeds a threshold; and

- continuing the remote copy with the selected block size.



54. (New) A computer program product comprising logic instructions stored on a computer readable medium which, when executed by a processor, configure the processor to manage a remote copy process between a first storage cell in a storage network and a second storage cell in a storage network by performing operations, comprising:

- establishing at least one of a plurality of parameters associated with at least one characteristic of the remote copy process;

- establishing at least one of a plurality of parameters associated with a spectrum sweep throughput probe;

- initiating the remote copy process to copy data from a first logical unit in the first storage cell to a copy of the first logical unit in the second storage cell over the storage network, wherein the remote copy process copies data using an initial native block size; and

- performing the spectrum sweep throughput probe during the remote copy process when the characteristic of the remote copy process satisfies at least one of the plurality of parameters.

55. (New) The computer program product of claim 54, wherein the memory module further comprises logic instructions that, when executed on the processor, cause the processor to establish at least one of:

- a range of write block sizes to be evaluated in the spectrum sweep throughput process;

- a step size by which a write block size is adjusted in the spectrum sweep throughput process;

- a time duration for which data transmission is conducted during a phase of the spectrum sweep throughput process;

- a lower bound of a write block size; and

- an upper bound of a write block size.



56. (New) The computer program product of claim 55, wherein the memory module further comprises logic instructions that, when executed on the processor, cause the processor to establish at least one of:

- a time period permitted to elapse before a spectrum sweep throughput process is initiated; and

- a threshold change in transmission conditions associated with the remote copy process.

57. (New) The computer program product of claim 56, wherein the memory module further comprises logic instructions that, when executed on the processor, cause the processor to initiate a spectrum sweep throughput probe in response to a predetermined decrease in a data transfer performance parameter during the remote copy process.

58. (New) The computer program product of claim 54, wherein performing a spectrum sweep throughput probe during the remote copy process when the characteristic of the remote copy process satisfies at least one of the plurality of parameters comprises:

- performing copy operations from the first storage cell to the second storage cell for a plurality of time intervals, wherein each time interval utilizes a different write block size for a predetermined period of time;

- measuring a performance parameter at each of the time intervals; and

- selecting a block size for which the performance parameter exceeds a threshold; and

- continuing the remote copy with the selected block size.